Stat and Data Analysis Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Activity 4.1 Outlier Effects – Using Fathom

1. Graph the following points. Find the correlation



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 | 6 |
| y | 2 | 4 | 3 | 7 | 5 | 8 |



1. Now include the point (4,5). Mark the point on the graph above as point A. Where is the point in relation to the original points? Recalculate the correlation. What happened?
2. Change the point to (8,9). Mark the point on the graph as point B. Where is the point in relation to the original points? Recalculate the correlation. What happened?
3. Change the point to (14,16). Mark the point on the graph as point C. Where is the point in relation to the original points? Recalculate the correlation. What happened?
4. Change the point to (10,5). Mark the point on the graph as point D. Where is the point in relation to the original points? Recalculate the correlation. What happened?
5. Change the point to (18,5). Mark the point on the graph as point E. Where is the point in relation to the original points? Recalculate the correlation. What happened?
6. Change the point to (5,14). Mark the point on the graph as point F. Where is the point in relation to the original points? Recalculate the correlation. What happened?
7. Change the point to (1,10). Mark the point on the graph as point G. Where is the point in relation to the original points? Recalculate the correlation. What happened?
8. Graph the following points. Find the correlation.



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 6 | 7 | 8 | 9 | 10 | 11 |
| y | 12 | 14 | 13 | 10 | 9 | 8 |



1. Now include the point (1,18). Mark the point on the graph as point A. Where is the point in relation to the original points? Recalculate the correlation. What happened?
2. Change the point to (17,6). Mark the point on the graph as point B. Where is the point in relation to the original points? Recalculate the correlation. What happened?
3. Change the point to (14,16). Mark the point on the graph as point C. Where is the point in relation to the original points? Recalculate the correlation. What happened?
4. Change the point to (1,1). Mark the point on the graph as point D. Where is the point in relation to the original points? Recalculate the correlation. What happened?
5. Change the point to (8,11). Mark the point on the graph as point E. Where is the point in relation to the original points? Recalculate the correlation. What happened?
6. Change the point to (8,19). Mark the point on the graph as point F. Where is the point in relation to the original points? Recalculate the correlation. What happened?
7. Change the point to (19,10). Mark the point on the graph as point G. Where is the point in relation to the original points? Recalculate the correlation. What happened?
8. Graph the following points. Find the correlation.

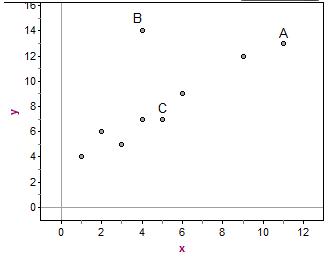
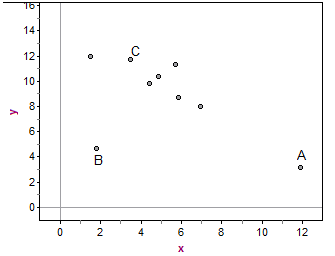


|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 6 | 7 | 8 | 9 | 7 | 8 |
| y | 12 | 14 | 13 | 10 | 10 | 11 |



1. Now include the point (1,18). Mark the point on the graph as point A. Where is the point in relation to the original points? Recalculate the correlation. What happened?
2. Change the point to (17,18). Mark the point on the graph as point B. Where is the point in relation to the original points? Recalculate the correlation. What happened?
3. Change the point to (14,4). Mark the point on the graph as point C. Where is the point in relation to the original points? Recalculate the correlation. What happened?

For each of the following graphs state whether the correlation would weaken, strengthen, or stay about the same if the marked points were removed.

1. 2.

A – A –

B – B –

C – C –